REMARKS

With the addition of new claim 56, claims 1 to 56 are pending in the present application.

It is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

Applicants thank the Examiner for considering the previously file Information Disclosure Statement, PTO-1449 paper, and cited references.

The Specification was objected to for asserted informalities. The Specification has been corrected herein without prejudice to obviate the present objection(s). Withdrawal of the objection(s) to the Specification is therefore respectfully requested.

Claims 1 to 11 and 41 to 51 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,869,384 (the "Yu" reference).

To reject a claim under 35 U.S.C. § 102, the Office must demonstrate that each and every claim feature is identically described or contained in a single prior art reference. (*See Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)). As explained herein, it is respectfully submitted that the Office Action does not meet this standard, for example, as to all of the features of the claims. Still further, not only must each of the claim features be identically described, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the claimed subject matter of the claims, as discussed herein. (*See Akzo, N.V. v. U.S.I.T.C.*, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986)).

Further, to the extent that the Office Action may be relying on the inherency doctrine, it is respectfully submitted that to rely on inherency, the Office must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics *necessarily* flows from the teachings of the applied art." (*See* M.P.E.P. § 2112; emphasis in original; and *see Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Int'f. 1990)). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic. Accordingly, it is respectfully submitted that any anticipation rejection premised on the inherency doctrine is not sustainable absent the foregoing conditions.

Claim 1 relates to a method of forming a silicon oxide layer. Claim 1, as presented, provides for forming a silicon oxide layer by iteratively performing multiple times

steps which include oxidizing a silicon precursor gas to form a sub-layer and heating a substrate to anneal the sub-layer. Even if the "Yu" reference may refer generally to forming a gap filling silicon oxide layer on a substrate and annealing the substrate, the "Yu" reference does not identically disclose (or suggest) the feature of forming the silicon oxide layer by iterative forming and annealing of sub-layers.

Thus, the "Yu" reference does not identically disclose (or suggest) all of the features recited in claim 1, so that the "Yu" reference does not anticipate claim 1 its dependent claims 2 to 10.

As further regards claim 4, it further provides that the second temperature to which the substrate is heated to anneal the sub-layers is approximate to the highest processing temperature subsequently applied to the substrate following formation of the silicon oxide layer. The Office Action conclusorily asserts that column 10, lines 4 to 12 and 49 to 55 of the "Yu" reference discloses this feature. Specifically, the Office Action relies on the reference in "Yu" to 920 degrees as disclosing the "highest processing temperature." In fact, the cited section does not refer to the temperature of 920 degrees. Instead, a reference to 920 degrees is made once in the "Yu" reference at column 9, line 10. The reference there is to a temperature employed during the formation of the silicon oxide layer and it is not a discussion of a processing temperature that is reached subsequent to the formation of the silicon oxide layer (which formation is relied upon by the Office Action as assertedly disclosing the formation of the silicon oxide layer of claim 1). Indeed, nowhere does the "Yu" reference identically disclose (or even suggest) forming a silicon oxide layer which includes heating a substrate to anneal a sub-layer of the silicon oxide layer, where the temperature to which the substrate is heated for the annealing is approximate to a highest processing temperature applied subsequent to the forming of the silicon oxide layer, as provided for in the context of claim 4.

For this additional reason, the "Yu" reference does not identically disclose (or even suggest) all of the features of claim 4, so that the "Yu" reference does not anticipate claim 4 for this additional reason.

Claim 11 (which has been rewritten to be in independent form to facilitate matters) relates to a method of forming a silicon oxide layer and provides for forming a silicon oxide layer with a compressive stress and heating a substrate to anneal the silicon oxide layer. The Office Action conclusorily asserts that column 11, lines 16 to 25 of the "Yu" reference discloses forming a silicon oxide layer with a compressive stress. The cited

section merely indicates that little shrinkage occurred upon annealing, so that layers were provided with limited stress. The Office Action inexplicably concludes that the provision of layers with limited stress discloses relieving a previous compressive stress. Even if "comparatively little shrinkage occurs" so that "limited stress [is] formed" were to suggest that little additional tensile stress is introduced, it does not identically disclose forming a layer with a compressive stress. Indeed, any review of the "Yu" reference makes plain that it does not identically disclose (or suggest) these features.

Thus, the "Yu" reference does not identically disclose (or suggest) all of the features recited in claim 11, so that the "Yu" reference does not anticipate claim 11.

Claim 41 includes subject matter like that of claim 1, so that the "Yu" reference does not anticipate claim 41 or its dependent claims 42 to 51, for at least essentially the same reasons explained above as to claim 1.

As further regards claim 44, it provides that the second temperature to which the substrate is heated to anneal the sub-layers is approximate to the highest processing temperature subsequently applied to the substrate following formation of the silicon oxide layer. As explained above as to claim 4, the "Yu" reference does not identically disclose (or suggest) this feature.

For this additional reason, the "Yu" reference does not identically disclose (or suggest) all of the features of claim 44, so that the "Yu" reference does not anticipate claim 44.

As further regards claim 51, it provides for forming a silicon oxide layer with a compressive stress. As explained above as to claim 11, even if the relied upon section of the "Yu" reference may suggest that little additional tensile stress is introduced, it does not identically disclose forming a layer with a compressive stress. Indeed, any review of the "Yu" reference makes plain that it does not identically disclose (or suggest) these features.

For this additional reason, the "Yu" reference does not identically disclose (or suggest) all of the features of claim 51, so that claim 51 is allowable.

Withdrawal of the anticipation rejections of claims 1 to 11 and 41 to 51 is therefore respectfully requested.

Claims 31, 37, and 38 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent Application Publication No. 2004/0065932 (the "Reichenbach" reference).

Claim 31 relates to a method of sealing a chamber of an electromechanical device having a mechanical structure overlying a substrate, where the mechanical structure is in the chamber, and provides for depositing a sacrificial oxide layer over at least a portion of the mechanical structure by oxidizing a silicon precursor gas and annealing the sacrificial layer.

The Office Action asserts that the discussion in paragraph 46 of the "Reichenbach" reference regarding heating foundation wafer 11 to a temperature over 1000 degrees after introduction of oxide 30 discloses annealing. Apparently, the Office's assertion is based on the misconception that heating is synonymous with and/or inherently includes annealing. However, while annealing may include a heating step, not all heating necessarily includes annealing. Further, the "Reichenbach" reference provides constraints under which the heating is to be performed, which may preclude the possibility of annealing. The possibility of a feature does not satisfy the anticipation standard. For example, the "Reichenbach" reference indicates that the heating cannot be such that it would result in compaction. Indeed, nowhere does the "Reichenbach" reference identically disclose (or suggest) annealing a deposited sacrificial oxide layer as provided for in the context of claim 31.

Thus, the "Reichenbach" reference does not identically disclose (or suggest) all of the features of claim 31, so that the "Reichenbach" reference does not anticipate claim 31 or any of its dependent claims, e.g., claims 37 and 38.

Withdrawal of the anticipation rejections of claims 31, 37, and 38 is therefore respectfully requested.

Claims 12 to 15 and 52 to 55 were rejected under 35 U.S.C. § 103(a) as unpatentable over the "Yu" reference in view of United States Patent No. 6,602,806 (the "Xia" reference).

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and

not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). As clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claims 12 to 15 ultimately depend from claim 1 and claims 52 to 55 ultimately depend from claim 41, and are therefore allowable over the cited references since the "Xia" reference does not correct--and is not asserted to correct--the critical deficiencies of the "Yu" reference explained above as to claims 1 and 41, respectively.

Withdrawal of the obviousness rejections of claims 12 to 15 and 52 to 55 is therefore respectfully requested.

Claims 16 to 18, 22 to 24, 26, 29, and 30 were rejected under 35 U.S.C. § 103(a) as unpatentable over the "Yu" reference in view of United States Patent No. 6,544,898 (the "Polson" reference).

Claim 16 relates to a method of forming a MEMS and provides for forming a MEMS structure on a substrate, oxidizing a silicon precursor gas to form a silicon oxide layer, and heating the substrate to anneal the silicon oxide layer. With respect to the steps of forming and annealing the silicon oxide layer, the Office Action refers to the "Yu" reference as assertedly disclosing these features. The Office Action admits that the "Yu" reference is unrelated to a MEMS, but instead refers to the "Polson" reference as assertedly disclosing forming a MEMS structure on a substrate. The Office Action further asserts that it would have been obvious to modify the method of the "Yu" reference to include forming a MEMS structure on the substrate as assertedly taught by the "Polson" reference prior to the steps of forming and annealing the silicon oxide.

However, one skilled in the art would not have formed and annealed silicon oxide as in the "Yu" reference to a substrate that includes a MEMS structure since such oxide layers tend to damage MEMS structures, as explained in the Specification, e.g., at page 3,

lines 14 to 20. Accordingly, the modification suggested by the Office Action would have been unpredictable in view of the prior art and necessarily relies on improper hindsight reasoning based on the present disclosure.

Accordingly, the combination of the "Yu" and "Polson" references does not disclose or suggest all of the features recited in claim 16, so that the combination of the "Yu" and "Polson" references does not render unpatentable claim 16 or any of its dependent claims 17, 18, 22 to 24, 26, 29, and 30.

As further regards claim 22, as presented, it provides that the second temperature to which the substrate is heated to anneal the silicon oxide layer is approximately the highest processing temperature applied to the substrate following the annealing of the silicon oxide layer. The Office Action refers to column 10, lines 4 to 12 and 49 to 55 as assertedly disclosing this feature. As more fully explained above as to patentability of claim 4, the cited section of the "Yu" reference does not disclose or suggest this feature, and nowhere does the "Yu" reference disclose or suggest this feature.

For this additional reason, the combination of the "Yu" and "Polson" references does not disclose or suggest all of the features of claim 22, so that claim 22 is allowable for this additional reason.

As further regards claim 30, it provides for forming a silicon oxide layer with a compressive stress. The Office Action refers to the "Yu" reference as assertedly disclosing this feature. However, as more fully explained above as to claim 11, even if the relied upon section of the "Yu" reference may suggest that little additional tensile stress is introduced, it does not disclose forming a layer with a compressive stress. Indeed, any review of the "Yu" reference makes plain that it does not disclose or suggest these features.

For this additional reason, the combination of the "Yu" and "Polson" references does not disclose or suggest all of the features recited in claim 30, so that claim 30 is allowable for this additional reason.

Withdrawal of the obviousness rejections of claims 16 to 18, 22 to 24, 26, 29, and 30 is therefore respectfully requested.

Claims 19 and 25 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Yu" reference, the "Polson" reference, and United States Patent No. 5,256,247 (the "Watanabe" reference).

Claims 19 and 25 ultimately depend from claim 16 and are therefore allowable over the cited references since the "Watanabe" reference does not correct the critical deficiencies of the combination of the "Yu" and "Polson" references explained as to claim 16.

Withdrawal of the obviousness rejections of claims 19 and 25 is therefore respectfully requested.

Claims 20 and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Yu" reference, the "Polson" reference, the "Watanabe" reference, and United States Patent No. 5,990,019 (the "Torek" reference).

Claims 20 and 21 ultimately depend from claim 19 and are therefore allowable over the cited references since the "Torek" reference does not correct the critical deficiencies of the combination of the "Yu," "Polson," and "Watanabe" references explained above as to claim 19.

Withdrawal of the obviousness rejections of claims 20 and 21 is therefore respectfully requested.

Claims 27 and 28 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Yu" reference, the "Polson" reference, the "Watanabe" reference, the "Torek" reference, and United States Patent No. 5,904,570 (the "Chen" reference).

Claims 27 and 28 ultimately depend from claim 21 and are therefore allowable over the cited references since the "Chen" reference does not correct the critical deficiencies of the combination of the "Yu," "Polson," "Watanabe," and "Torek" references explained above as to claim 21.

As further regards claim 27, it further provides that etching the silicon oxide layer includes applying a first etching process to the silicon oxide layer which forms an etch residue, oxidizing the etch residue, and applying a second etching process to the oxidized etch residue. The Office Action relies on a two stage etching process of "Watanabe" (of which the second stage produces an etch residue (see the "Watanabe" reference, column 4, lines 4 to 16)), as assertedly disclosing the first and second etching processes of claim 27, but admits that the "Watanabe" reference does not disclose oxidizing an etch residue formed by

the first etching process. The Office Action instead conclusorily asserts the "Chen" reference as assertedly disclosing this feature.

Contrary to the assertion by the Office Action, the cited section (column 2, lines 43 to 49) states that an oxygen plasma is used for removing a photoresist mask which was previously applied for masking an etching pattern. After the removal of the photoresist mask, residue accumulated during the etching is removed. For the removal, the integrated circuit is dipped into a solvent. Nowhere does the "Chen" reference disclose or suggest oxidizing the etch residue.

Furthermore, even if the "Chen" reference did disclose performing the residue removal by oxidizing the residue (which it does not), the suggested modification of the etching of the "Watanabe" reference to include the asserted features of residue removal of the "Chen" reference would still not disclose the features of claim 27. At most, the "Chen" reference indicates that after etching is completed (and after the etching mask is removed), any remaining residue is removed. Thus, if the features of the "Chen" reference are applied to the method of the "Watanabe" reference, the resulting method would provide for performing the two stage etching process of the "Watanabe" reference, subsequently removing an etching mask, and subsequently removing the etch residue which is produced by the second stage of the "Watanabe" reference.

For these additional reasons, the combination of the "Yu," "Polson," "Watanabe," "Torek," and "Chen" references does not disclose or suggest all of the features recited in claim 27 from which claim 28 depends, so that claims 27 and 28 are allowable.

Withdrawal of the obviousness rejections of claims 27 and 28 is therefore respectfully requested.

Claims 32 and 33 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Reichenbach" reference, the "Yu" reference, and United States Patent No. 6,635,509 (the "Ouellet" reference).

Claims 32 and 33 ultimately depend from claim 31 and are therefore allowable over the cited references since the "Yu" and "Ouellet" references do not correct the critical deficiencies of the "Reichenbach" reference explained above as to claim 31.

Withdrawal of the obviousness rejections of claims 32 and 33 is therefore respectfully requested.

Claims 34 and 35 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Reichenbach" reference and United States Patent No. 5,503,285 (the "Warren" reference).

Claims 34 and 35 ultimately depend from claim 31 and are therefore allowable over the cited references since the "Warren" reference does not correct the critical deficiencies of the "Reichenbach" reference explained above as to claim 31.

Withdrawal of the obviousness rejections of claims 34 and 35 is therefore respectfully requested.

Claim 36 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Reichenbach" reference and United States Patent No. 5,637,518 (the "Prall" reference).

Claim 36 depends from claim 31 and is therefore allowable over the cited references since the "Prall" reference does not correct the critical deficiencies of the "Reichenbach" reference explained above as to claim 31.

Withdrawal of the obviousness rejection of claim 36 is therefore respectfully requested.

Claims 39 and 40 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the "Reichenbach" and "Yu" references.

Claims 39 and 40 depend from claim 31 and are therefore allowable over the cited references since the "Yu" reference does not correct the critical deficiencies of the "Reichenbach" reference explained above as to claim 31.

As further regards claim 40, claim 40 provides for forming a silicon oxide layer with a compressive stress. The Office Action refers to the "Yu" reference as assertedly disclosing this feature. However, as explained above as to claim 11, even if the relied upon section of the "Yu" reference may suggest that little additional tensile stress is introduced, it does not disclose forming a layer with a compressive stress. Indeed, any review of the "Yu" reference makes plain that it does not disclose or suggest these features.

For this additional reason, the combination of the "Yu" and "Polson" references does not disclose or suggest all of the features of claim 40, so that claim 40 is allowable.

Withdrawal of the obviousness rejections of claims 39 and 40 is therefore respectfully requested.

New claim 56 does not add any new matter and is supported in the specification. Claim 56 depends from claim 16 and is therefore allowable for at least the same reasons as claim 16. Additionally, claim 56 includes subject matter analogous to that of claim 27 and is therefore allowable for essentially the same reasons as claim 27.

Accordingly, all of pending claims 1 to 56 are allowable.

Conclusion

In view of the foregoing, it is respectfully submitted that all of claims 1 to 56 are allowable. It is therefore respectfully requested that the objections and rejections be withdrawn. Prompt reconsideration and allowance of the present application are therefore respectfully requested.

Respectfully submitted,

Dated: April 17, 2008

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